

REMARKS

The Applicant thanks the Examiner for his attention to the present application.

There are 16 claims in this application.

Briefly stated, the invention is directed to a tubing probe for measuring a volatile compound in a fluid contained in an enclosure. The probe comprises a probe body made of a single piece of metal and having a shoulder for positioning substantially only the gas permeable tube inside the enclosure when the shoulder is made to rest on the exterior of the enclosure so that when the probe is inserted into the enclosure from the outside, the volatile compound pervaporates into the gas permeable tube. (Emphasis added)

Items in the Office Action will be dealt with as indicated below.

(2) Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states

In claim 1 applicant specifies that the probe body for positioning substantially only the gas permeable tube inside the enclosure. However, from a reading of the specification it is unclear as to what this limitation defines. There is no description in the specification which even hints at what the above-mentioned limitation defines.

The Examiner further states:

Claim 11 constitutes a process limitation. It is indefinite as to how the tube probe is further structurally defined by the limitation.

It is respectfully submitted that the specification describes clearly how the only tube is maintained inside the enclosure at page 6, line 2 et seq. as follows:

The probe is maintained in place on/in the fermenter using a standard port nut pressing on the shoulder 34 which ensures that, when inserted, the probe stays firmly in place. It should be noted that the probe can be sized to match any port structure, including a standard 25 mm port, Tri-clamp, Flange port threaded port etc. An O-ring receptacle 36 is grooved on the body to assure sterility. The locations of the shoulder and O-ring ensure that the maximum length of tubing is located inside of the broth while maintaining sterility of the culture/fermenter. (Emphasis added)

This description refers to Figures 1-5 which clearly show that only the tube is located inside the enclosure and no parts of the probe body is located inside the enclosure. The claim uses the term “substantially” because some dependent claims defines further “tube adaptors” and “supporting plate” which are attached at the one end of the probe body.

While it is believed that the description presently of record describes the feature under discussion adequately, it is felt that some clarification may be helpful. Therefore the new clarifying sentences are added on page 6 and it is respectfully requested that the submitted sentences be entered. It is further submitted that the amendment adds no new matter which is not inferable from the description and drawings as originally filed.

Claims 1, 6 and 11 have been amended to define more clearly and distinctly the subject matter under discussion. Claim 7 has been cancelled.

It is believed that amended claim 1 now defines the structure of the tube probe more clearly and distinctly, and points out the invention. It is therefore respectfully submitted that claim 1 is patentable under 35 U.S.C. 112, second paragraph. It is also submitted that amended claim 11 now defines further the structure of the tube probe in terms of its length and diameter.

(4) Claims 1, 6-12, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by the Austin, G.D. et al.

The Examiner states:

The Austin et al, article discloses a probe (figure 1) which comprises a single piece of stainless steel tube, the interior of the tube constitutes the inlet channel, and the carrier gas feed line the outlet channel, a sealing mechanism in the form of flanged fitting with o-ring, a gas permeable tube positioned at the bottom of the tube. The probe tube, sealing mechanism and silicon tubing are positioned relative to one another such that substantially only the silicon tubing is positioned within the fermenter.

Austin et al describes their instrument on page 243, column 2, first paragraph by referring to figure 1 as follows:

The main section of the sensor is a 35.5 cm long probe constructed of ½ inch stainless steel tubing, whose main purpose is to position the mass transfer region well below the surface of the fermentation broth. The tube, sealed at both ends, also acts as a conduit to supply the carrier gas from outside the sensor to the silicone tubing. Inside the ½ inch tube is a length of 1/8 inch stainless steel tubing which serves to transport the carrier gas from the silicones tubing to the semiconductor gas sensor.

It is clear from the above description and figure 1 that the probe described by Austin et al requires the stainless tube and the carrier gas feed line located inside the tube. Furthermore, as seen in figure 1, it further requires the flange and a sleeve located just below the flange in which the o-ring is provided. Contrary to the Examiner's above assertion, it is respectfully submitted that the probe body of Austin et al is not made of a single piece of metal. (Emphasis added) It is further submitted that the probe of Austin et al is inserted from the top of the fermenter in such a way that the silicone tubing is located well below the surface of the broth which inevitably results in locating the large portion of the probe body (½ inch stainless tubing) inside the enclosure.

In addition to the single piece construction of the probe body, amended claim 1 now more clearly defines that the shoulder on the probe body ensures that only gas permeable tube is located inside the enclosure.

As seen in the above discussion, Austin et al fails to describe the tube probe as claimed in claim 1. Claims 6-12 and 16 are either directly or indirectly dependent upon claim 1 discussed above. It is therefore respectfully submitted that claims 1, 6-12 and 16 are not anticipated by Austin et al and are patentable under 35 U.S.C. 102.

(6) Claims 2-5, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Austin et al.

The Examiner states:

Claims 2, 3 and 14 define a supporting plate for supporting the silicon tubing. The Austin et al. Article discloses a small cylindrical mesh sleeve which fits to the end of the tube for supporting the silicon tubing. This mesh sleeve is considered to be functionally equivalent to the claimed supporting plate.

Also, the use of adaptors to connect two tubes of differing diameters is known and within the kin of the routineer.

The claims under discussion depend either directly or indirectly upon claim 1 discussed above. As seen in above discussion, amended claim 1 is believed to be patentable over Austin et al, it is respectfully submitted that the claims under discussion are patentable under 35 U.S.C. 103(a) over Austin et al.